Limetree Bay Meeting and Inspections

Date: 4/30/2021

Start Time: 9:00 AM

End Time: 5:30 PM

Participants:

DPNR – Verline Marcellin and Austin Callwood

EPA – Eric Daly, Zeno Bain, Alex Rivera, Pat Foley (via phone) and Harish Patel (via phone)

Limetree – Catherine Elizee (Environmental Superintendent), Craig Miller (Environmental Department Manager), Brent Woodland (VP of Refinery Operations), Joyce Wakefield (Environmental Department /SPCC Qualified Individual). Fermin Rodriguez (Compliance Consultant), Sloan Schoyer (Compliance Consultant)

Neil Morgan, New Plant VP of Operations – Met with team at 2:10 AM – Sustainability and benefit for the community are key drivers from the company. Worked at refineries all over the world. Specialty on turning facilities around with safety/compliance/and profit in that order. Priority to work with community to address issues. Fully supportive to bring representatives of the community to the facility to have better engagement with the community.

Air Program Questionnaire:

1. Opening Meeting started at 9:10 AM.

2. Explained purpose of visit and proceeded with questionnaire.

3. Ask about any SO2 ambient monitoring status (five monitors)

    a. What is the status of the five (5) SO2 ambient monitor stations? Not in operation since February of 2013 since they have not burn any residual fuel oil since 2012.

    b. Since when the monitors have been out of operation and why? Because they are not burning residual fuel oil.

    c. Does Limetree has any plans to operate the stations? Limetree will start using the monitors if they start burning residual fuel oil, but no plans to do that as of today.

    d. Does Limetree own the land where the stations are located? If so, what is the current condition of these stations? Are they accessible and in fair conditions? Limetree does not own all the properties where these monitors are located. Two of them are located at an industrial park, St Croix Renaissance. Two are in small plots that are owned by Limetree. The last unit is located on a church property. Limetree maintains those grounds those from time to time.

Maintenance not conducted on a regular basis and limited to lawn mowing to maintain access. This occurs at the two within Limetree property and the church. Each site has a shed structure. The equipment is in there, but the analyzers are considered to be in disrepair. DPNR Director, Callwood asked "why are these monitors not operational if these monitors are capable of monitoring for SO2? Especially while the company has had multiple SO2 releases?"

DPNR Austin Callwood encouraged Limetree to plan ahead on how to address the issues affecting the community in a more effective way and consider the installation of instruments to provide options as a good neighbor. Fence line monitor will allow Limetree to identify which emissions are from the facility and which are not.

e. Does the facility have a meteorological station on its property? If so, is it operational? Where is this meteorological station located? Is it on Limetree's property? There was one but has not been maintained since SO2 monitors were taken out of service. It Is in disrepair and located on Limetree property. Hurricane Maria impacted the station significantly. This unit is located at Estate Cottage area of Limetree's property. Limetree is using internet and weather applications to obtain weather information, plus wind socks.

4. When the refinery processes were restarted? Is the refinery in operation? If not, when was the last day it was operated? The refinery began starting up the crude unit in September 2020. Power and steam utilities started in 2020. The refinery is in operation as of today. Majority of intended process units are considered in operation. Only operating a limited portion of the plant. Currently in commissioning process of several units. Currently making some products, in partial operation. Kerosene (jet fuel, ULSD, Low sulfur diesel, unfinished gasoline (gasoline components), plus sulfur and delayed coke (solid product). Most of units that were intended for restart project are in startup process. The rest of units are expected to be in operation on May 2021. The units currently in operation are not at full capacity, due to combination of technical challenges and market demand.

5. April 23, 2021 Incident

Limetree believes there was a confusion about the incident and information was provided incorrectly, because the flare did not release H2S, it released SO2. Limetree showed and provided copy of diagram with main elements that were involved in the incident. Mr. Woodland explained that the refinery uses a lean amine unit that absorb the H2S from the product, become rich amine that goes into amine regenerators. Acid gas (H2S) goes to sulfur recovery unit that combust H2S, converts it to SO2, and it is solidified into solid sulfur. The event on April 23 was related to the main sulfur recovery unit #4 fire eye, detecting a lack of flame and returned the acid gas to the flare where it was combusted to SO2. The flare always has a flame. Limetree activated their incident command system and began implementing action plan. The shutdown delayed coker unit and desulfurizer to mitigate the production of H2S and decrease the release. Facility took off Amine Regenerator #5 and placed #4 in operation to depressurize unit #5.

Limetree does not have a monitor to measure the SO2 concentrations at the atmosphere, they rely on equipment performance and operational data to determine that the release was all SO2. DPNR explained that several residents described odors of both H2S and SO2. The residents were very specific on the description of the odor characteristics which confirms that there were releases of both SO2 and H2S.

Eric Daly asked the facility representatives to describe their communication with the community during these releases. He cited the February 2021, March 2021, April 23rd, and the most recent exceedance events earlier this week. According to the facility, they are not responsible to communicate with the community. They stated that it is job of VITEMA. Limetree is responsible to communicate with DPNR and government agencies. Limetree notified DPNR of these events but did not notify VITEMA. Eric then relayed his EPA Program message that they are encouraging Limetree to initiate an ambient air monitoring/community alert program.

Regarding the February 4, 2021 oil droplet release, it was asked if there a flame at the flare when this incident occurred? Limetree believes that the droplets were caused by a release of heavy oil that came out of the flare and no flaming droplets were reported. A mist with heavy oil combusted reached areas in Clifton Hill. All corrective actions and investigation were completed, and actions were taken to correct the situation that triggered the February 4th event.

Limetree mentioned that they will guarantee that both sulfur recovery units shall be operable and readily available when using the SRU process (SOP procedures amended). Limetree is changing SOPs to better manage these incidents. Load (Sulfur) shedding procedures modified to shut down highest sulfur emitting units. The pressure relief valve did not trigger an alarm, they do have pressure increase alarms. The isolation (chopper valve) activation is now being tracked. Honeywell will conduct assessment of SRU fire eyes (flame detector) to have more effective mechanism and reliable. They will also work with the computer logic to avoid any false shutdown due to flickering flame because think there is no flame.

Summary of actions provided by facility

1. **Implement the H2S load shed procedure – Completed**
2. **Run both 3SRU and 4SRU at the same time, where the lead SRU received clean acid gas or ammonia acid gas and the lag SRU is on standby in the event the lead SRU trips – Completed**
3. **Manufacturer (Honeywell) scheduled to investigate and tune the existing "fire eye" flame scanners – In progress**
4. **Program SRU "fire eye" scanner delay times for both SRUs – In progress**
5. **Re-range three pressure transmitters in the amine regeneration units and SRUs to 10 psi above PSV setpoint – Completed**
6. **Add electronic indication of acid gas inlet chopper valves in the plant's control system and plant historian database – In progress**

6. Does the facility conduct any monitoring after getting odor complaints? The facility uses a handheld (Draeger) unit to monitor for H2S, SO2, and VOC when they receive odor complaints. They seem to never get readings since the odor issues are short lived. Their actions are reactive, no fence line monitoring. Fence line monitoring is conducted only for benzene.

7. About April 23, 2021 - How long did the release last, concentration, flow (ask for notification report) for both H2S and SO2.
Over several hours, the trip occurred prior to 6 AM shift. Limetree will provide more precise information and copy of the notification report that was sent to DPNR. Limetree does not know the concentration of SO2 that was emitted. Report was provided via email by Catherine Elizee during the evening of 4-30-21.

8. Are all exceedances from the past week all related to the same issue? Not related to the same operational issues that occurred on April 23, 2021.

9. March 18-25, 2021 East Fuel Gas H2S Exceedance Notification – Report dated on March 25, 2021 submitted to DPNR referred to the event as ongoing. When these exceedances were controlled? If not controlled on March 25, 2021, ask for report summarizing the entire even. – H2S east fuel drum monitor. The event was corrected, **Catherine will provide a report about that incident (Report was provided via email).** The crude unit and both amine towers were shut down and the refinery was offline for a week (circulation keep processes running but without production).

10. How many flares does the facility have and how many are currently in operation? Limetree is operating Flare #8 (was D7941) and started commissioning of Flare #3 (west).

11. EPA asked about the status of the design and installation of FGRS (Flare Gas Recovery System) - Limetree is planning to install a FGRS at Flare #8. Planning is early phases, engineering design very preliminary. **Pat Foley requested written response about sizing of FGRS and design.**

12. Is Limetree using Sulfix absorbant to remove H2S from the flare header? Yes

- When was the Sulfix injection system installed? **Catherine to provide. The system was not installed in September 2020. The system was not turned on because no exceedances were triggered.**
- When was the Sulfix system first operated to control H2S emissions; October 6, 2020
- How well is the system working to control H2S; System is operating very well.
- What is the maximum injection rate of the system; **Catherine to provide**
- What injection rate was used during the recent exceedances at Flare #8; Maximum rate, Catherine to provide. System operating at maximum capacity, not sized up for that type of event.
- Why did it not prevent the recent violations from happening? Was in service for the recent events. Its design to certain capacity and won't be able to keep up if capacity is exceeded. The system is capable to modify its operation automatically. It is design for 100 ppm H2S and 1 million scf.

- Where does the liquid from the knockout go and how is it finally disposed of? The liquid goes to the wastewater treatment plant.
- **Catherine to provide diagram is the system.**

13. Is there any H2S monitors installed in the refinery WWTP? How many H2S CEMS monitors one at the flare, one at fuel gas balance drum (east fuel), coker heater, coker LPG line, vaporizer #8 (five in total)?
The WWTP has three ambient monitoring analyzer for H2S on the east side and one on the west side.

- When were the H2S monitors installed? **Last year, will provide date later**
- Have the monitors registered any readings above 10 ppm since being installed? No readings over 10 ppm during the recent events. No knowledge of any instantaneous readings of over 10 ppm.
- What were the monitors reading during the recent exceedance events at Flare #8; No high readings were measured
- What were the monitors reading during the inspection; and – No readings over 10 ppm, the H2S concentrations were zero during the entire walkthrough.
- It would helpful to get photos of the monitors. Photos were provided via email by Catherine Elizee on 4-30-21.

Facility has fixed and portable meters at several areas to monitor H2S. **Facility to provide brochure of the H2S monitors with specification.**

Closing Meeting

Discussed message given by Neil Morgan. Summarized the documents and information that needs to be submitted to EPA. Priority given to notification reports since Limetree stated that next week EPA will be at the plant all week. **DPNR Environmental Director, Austin Callwood, informed the facility that DPRN will investigate air monitoring to be put in place as a precautionary measure due to the fact that the facility faces future challenges that may cause further events. EPA agreed on sending list of items via email.**

SPCC Inspection
Eric Daly conducted a SPCC Inspection of the Limetree Bay facility with Joyce Wakefield (SPCC Qualified Individual) and Benjamin Keularts (Consultant)

Summary:
There are multiple deficiencies in the SPCC Plan that have been drafted by RPB Prevention Section Staff. OSC Daly used the plan review information to assist in the field inspection.

- Total facility tank volume capacity
    - EPA Inspector counseled the representatives on how to calculate both the FRP and SPCC total volume. Any tanks that were permanently out of service should not be listed as an active tank in the SPCC Plan and not be counted in their total volume
- Out of Service Tanks
    - Tanks that were described as permanently out of service were properly marked with out of service date. The piping was either capped or blanked flanged
- Secondary Containment
    - The plan had multiple descriptions of secondary containment areas not having sufficient capacity for the largest tank and freeboard. The inspector verified that the plan was not written properly and there are several secondary containment areas that are joined. Meaning, there is intentional breaches created in shared walls that allow flow into the adjacent containment area. This in turn provides sufficient secondary containment for the largest tank in those areas. Most of the secondary containment walls are considered earthen berms.
    - Containment Areas 3301 and 3304 are the only secondary containment areas that do not appear to be sufficient. The secondary containment is made of concrete in both of these areas. The facility was in the process of modifying these two areas by cutting out a notch in the shared concrete wall. This modification is not completed and at the time of inspection, it didn't appear that the containment would sufficiently hold the release of the largest tank. This was the only field inspection deficiency found.
- Overall Plan Revision
    - The facility is aware that they will receive the final SPCC deficiency letter which will include the plan and field inspection deficiencies.
    - The facility is already working on tank capacity calculations, language to describe shared secondary containment, updated tank list (excluding permanently out of service tanks), mobile container (totes) and mobile refueler language, and other recommendations by the inspector